Offset System for **Greenhouse Gases**

2005

Papers for Consultation

- **Overview Paper**
- **Technical Background Document**

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Offset System for **Greenhouse Gases**

2005

For Consultation

Overview Paper

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Canada

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1. Introduction

Canada's domestic Offset System is designed to encourage cost-effective domestic reductions or removals (i.e. carbon storage) of greenhouse gas emissions in activities that are not covered by federal greenhouse gas regulations. The System is a key element of the Government of Canada's plan to honour its commitments under the Kyoto Protocol.

Through the Offset System, individuals, businesses and organizations will be able to earn offset credits when they implement projects that result in incremental emission reductions or removals beyond what they would have done under normal business activities (i.e. "business as usual"). Once created, verified offset credits can be sold to the Climate Fund, to Large Final Emitters (LFEs) (i.e. sectors that contribute significantly to GHG emissions, such as oil and gas, mining and manufacturing and thermal electricity sectors), and potentially to other domestic buyers.

Potential offset projects exist across the economy and society and include, for example:

- property developers who include renewable energy elements when building new sub-divisions
- farmers who adopt low-till practices that remove carbon dioxide from the atmosphere and store it as carbon in the soil
- electricity or gas utilities that implement demand side management (DSM) programs that reduce energy consumption by their customers
- forestry companies that invest in reforestation
- municipalities that capture and destroy methane from landfill sites
- companies that implement programs to encourage their employees to use public transit or telework
- companies covered by the LFE regulations when they reduce emissions from activities that are not covered by the LFE regulatory requirements

Given the range of organizations and sectors in Canada that might participate in this Offset System, broad consultations are a highly valuable part of the design process. The Government is inviting feedback on the latest proposals for this Offset System through two key documents: 1) this *Overview Paper*, which sets out the overall policy context and the proposed principles and rules to guide the system, and 2) the accompanying *Technical Background Document*, which sets out a detailed proposal for implementing those rules. Taken together, these documents provide a complete picture of the Government's proposal for encouraging greenhouse gas reductions or removals.

A landfill operator decides to install a methane collection system and wants to receive offset credits for flaring the methane generated by the landfill. The operator applies to the Program Authority to have the project accepted as an offset project, using an approved quantification protocol. Once the project is accepted the Operator can begin quantifying the reductions of greenhouse gas achieved by the project, having the results verified and applying to be issued offset credits for the verified greenhouse gas reductions. When the credits are issued the landfill gas operator can sell the credits to a company that is required to reduce its greenhouse gas emissions, or to the Climate Fund.

2. Policy Context

The scope and purpose of the domestic Offset System has evolved over time. The Government of Canada's 2002 *Climate Change Plan for Canada* first proposed a domestic offset system as a complement to the LFE regulatory system that would have only covered emission reductions and removals in forestry, agriculture and possibly landfill gas.

In early 2003, an interdepartmental Working Group on Offsets (WGO) was established to work on the design of a domestic Offset System, and to produce an *Offset System Discussion Paper* as the basis for consultations. The Working Group is comprised of federal officials from Environment Canada, Natural Resources Canada, Agriculture and Agri-food Canada, Foreign Affairs Canada, Industry Canada, and the Privy Council Office.

In June 2003, consultations with provinces/territories and other stakeholders took place in six cities across Canada. Building on the many comments received during these consultations and in subsequent meetings with provinces and stakeholders, the WGO has developed the proposed design of the Offset System. The results of this work are detailed in the *Technical Background Document* on the Offset System.

This year the Government released its latest proposal on the role of the domestic Offset System in the 2005 climate change plan, *Moving Forward on Climate Change*. The 2005 Plan expands considerably both the **scope** and the **scale** of the Offset System from that envisaged in 2003, but continues to adhere to the core objectives and principles identified through the work of the WGO and the consultations.

The **scope** of the system has been broadened to include more activities and sectors than originally envisioned in the *2002 Climate Change Plan*. It is now proposed that any emission reduction or removal activity that is not subject to the LFE regulations would potentially be eligible to generate offset credits.

The **scale** of the Offset System has also been expanded significantly. The purpose of the Offset System is no longer just to be one of several compliance options for LFEs. In addition to that role, the Offset System is now a key element of the Government's overall approach to climate change. The Offset System is the source of domestic greenhouse gas reductions or removals for the Climate Fund, which in turn, is the cornerstone of the new Climate Change Plan.

In light of the expanded scope and scale of the Offset System, the Government is looking at options for delivering the system in the most efficient and effective way, which would include building on existing delivery mechanisms.

3. Key Principles

The Offset System would be built around the following principles:

Environmental benefits: The primary consideration in determining a project's eligibility for offsets should be whether the project contributes to greenhouse gas emission reductions or removals.

Transformational change: The Offset System design should result in transformational change of all sectors of the Canadian economy and society in such a way that businesses, households, individuals, and others make greenhouse gas emission reductions and removals part of their daily decision-making.

Maximum scope: The Offset System should, to the extent practical, promote projects in all sectors and of all types.

Administratively simple: The Offset System should be simple and cost-effective to administer. To that end, the proposed design includes only two new bodies – the Offset Program Authority itself, and a registry to track the status of projects.

Build on existing programs: The Offset System should seek to build on other relevant government and private-sector initiatives.

4. Offset System Rules

The accompanying *Technical Background Document* sets out the proposed project eligibility criteria and the process for creating offset credits. The following is a short summary of the proposed criteria and approach.

To qualify for credits, the reductions or removals must meet several criteria. These include:

Quantifiable: The reductions or removals of greenhouse gases from a registered offset project must be quantifiable (i.e. measurable) using recognized protocols or methodologies. Such protocols are currently under development, and to the extent possible will be developed and approved in advance so as to facilitate the timely processing of projects by the Offset System.

A farmer decides to switch from using conventional tillage to using no till. No till farming captures CO_2 from the atmosphere and stores it in the soil. The farmer applies to the Program Authority to have the project accepted as an offset project, using an approved quantification protocol. Once the project is accepted the farmer can begin quantifying the removal of greenhouse gas achieved by the project, having the results verified and applying to be issued offset credits for the verified greenhouse gas removals achieved by the project. When the credits are issued the farmer may sell the credits to a company that is required to reduce its greenhouse gas emissions or to the Climate Fund.

Real: An offset project must be a specific and identifiable action that results in greenhouse gas emission reductions and removals (and does not simply result in emissions moving to another site or source).

Surplus: Offset project reductions or removals will only be eligible to generate offset credits if such reductions or removals have not occurred as the result of a specified federal greenhouse gas regulation, program, or incentive.

Verifiable: Qualified, accredited third parties must be able to verify that the reductions or removals have been achieved as claimed.

Unique: A greenhouse gas reduction or removal can be used only once to create an offset credit in the Offset System.

Coverage of the Offset System: Generally, an offset project must result in greenhouse gas reductions or removals from sources or sinks that are included in Canada's inventory for compliance with the Kyoto Protocol. However, consideration will be given to including projects that achieve real reductions or removals even if such reductions or removals are not included in this inventory. For example, projects that store carbon in Canada may be eligible regardless of the origin of such carbon. Similarly, projects originating in Canada, but where some of the emission reductions may be realized in another country (i.e. reductions by Canadian firms engaged in cross-border trucking) may be eligible. Forest management projects may also be eligible, even if Canada elects not to include forest management officially towards its GHG reductions under the rules of the Kyoto Protocol.

Start date of project: Projects that achieve their initial reductions or removals January 1, 2000 or later will be eligible projects for credit generation if they meet the other criteria for eligibility.

Reductions or removals are achieved within the registration period: The registration period begins on the date an offset project is registered and continues for eight years. Projects can be re-registered.

Ownership: There must be clear legal ownership of the greenhouse gas reductions or removals achieved from a project. To facilitate the identification of ownership, the offset program administration may establish ownership guidelines in advance for specific types of projects.

A forestry company decides to implement an afforestation project. The growing trees result in CO_2 being removed from the atmosphere and stored in the trees. The forestry company applies to the Program Authority to have the project accepted as an offset project, using an approved quantification protocol. Once the project is accepted the forestry company can begin quantifying the removal of greenhouse gas achieved by the project, having the results verified and applying to be issued offset credits for the verified greenhouse gas removals achieved by the project. When the credits are issued the forestry company may sell the credits to a company that is required to reduce its greenhouse gas emissions or to the Climate Fund.

5. Offset Credit Creation

The *Technical Background Document* describes in detail the necessary steps for the creation of an offset credit.

In summary, there are four stages to creating an offset credit:

- Applying to register the GHG reduction or removal activity as an "offset project"
- Validating that the requirements for an offset project are met and completing the registration of the project
- Verifying the emission reductions or removals that have been achieved by the project
- Issuing the corresponding number of offset credits

These steps are set out diagrammatically in Annex 1.

> An energy company that is required to reduce its greenhouse gas emissions at its existing facilities decides to establish a new wind farm to produce electricity. The energy company will apply to have the wind farm accepted as an offset project. Once the project is accepted the energy company can begin quantifying the reduction of greenhouse gas emissions achieved by the project, having the results verified and applying to be issued offset credits for the verified greenhouse gas emission reductions achieved by the project. The energy company can use the offset credits from the wind farm to help meet its Large Final Emitter obligations.

6. Specific Design Elements

Tradeable credits

Offset credits will be tradeable in the domestic market and will be bankable.

Credits will count towards the emission reduction requirements (i.e. compliance units) established for LFEs. Offset credits can also be purchased by the Climate Fund, a government agency (officially, the Canada Emission Reduction Incentives Agency), which is being set up to serve as the federal government's purchasing agency for domestic offset credits and eligible Kyoto compliance units.

Offset credits can also be purchased by non-government organizations or citizens, who thereby finance the reductions or removals of greenhouse gases and contribute to the improvement of the environment.

Offset credits will be subject to domestic rules for achieving domestic policy objectives. In developing the rules, however, the government will be informed by what is happening internationally in other project-based emission reduction systems, including the Kyoto Protocol's Clean Development Mechanism. The government will also be exploring options for linking with other emissions trading systems.

The actual trading of the credits will take place through institutions, such as brokers or exchanges that are set up by the private sector. Here the role of the government will be restricted to tracking the credits through a national tracking system in order to ensure they are not used more than once.

Simplifying the project approval process

The use of standardized quantification protocols will make it easier for projects to be approved in the Offset System and for credits to be issued for qualifying reductions. Such protocols make the system more efficient for both project developers and the Offset Program Authority. The government proposes to use the International Organization for Standardization (ISO) international standard 14064-2 as the framework for the quantification of reductions and removals, for a number of reasons:

- it has clear requirements that can be verified
- it is policy-neutral
- there is international consensus on the standard
- it provides a credible system for developing, publishing, reviewing, and revising the standard over time

Other quantification protocols, such as the World Resources Institute – World Business Council on Sustainable Development (WRI-WBCSD) Greenhouse Gas Protocol can also provide guidance on how to quantify emission reductions and removals from different activities.

Offset System Quantification Protocols – protocols that are pre-approved for use by project proponents, will be drafted by experts and then submitted to a standards development organization, such as the Canadian Standards Association, for standardization (i.e to provide a common look and feel and to ensure consistency with Offset System requirements). These protocols would then be validated by the Offset Program Authority.

Quantification protocols currently under development by the government include:

- landfill gas capture and destruction
- reductions in methane emissions in agriculture
- soil management
- afforestation

Other quantification protocols whose development is being initiated by the government include:

- intermodal transportation
- biofuels
- geological sequestration
- non-emitting energy
- energy efficiency

Simplifying the credit issuance process

In general, a quantification protocol would include guidelines on how to quantify the emission reductions or removals resulting from a project, relative to a "business-as-usual" baseline (representing an estimate of what emissions or removals would have been in the absence of the project). Every effort is being made to simplify that quantification process. For example, in the areas of agricultural sinks, landfill gas capture, and non-emitting energy, pre-determined factors or coefficients will be used, thereby avoiding the need to establish "business-as-usual" baselines for each individual project.

In the case of non-emitting energy, it is proposed that small projects (that is, projects with a capacity less than a threshold in the range of 50—200 MW) be treated in a simple fashion in the Offset System, while large projects would be reviewed on a case-by-case basis. Credit creation for small non-emitting energy projects would be based on a single national emission intensity factor for electrical generation. This approach could be extended to other types of projects that displace or avoid thermal electricity, such as demand-side management programs, co-generation, and energy efficiency.

Micro projects

The government's proposal has focused on projects of a reasonably significant size. There would be a minimum project size such that projects whose size would not support the administrative costs associated with the system are screened out. However, we would be interested in views on whether a separate stream for "micro" projects should be developed as part of the Offset System. A "micro" project stream would have a different set of administrative requirements that would make the Offset System accessible to individual Canadians.

Such a "micro" project stream would not require project-by-project approval. Instead, it could involve partnerships with retailers, builders, and energy-supply companies in such a way as to provide an incentive to individual Canadians to make purchases that reduce GHG emissions (e.g. ultra-high energy efficient appliances and automobiles) or to retailers and others who promote these sales.

> **Micro project** - Mr. Taylor decides to purchase a new highly- energy efficient appliance. If the appliance meets the efficiency requirements of the micro project stream Mr. Taylor receives an incentive.

7. Next Steps

The proposed Offset System has been conceived to meet the principles of Canada's Climate Change Plan, and to function with minimal administrative complexity. Feedback on this Overview paper and the *Technical Background Document* is very important for making improvements to ensure that the final system helps Canada deliver on its Kyoto commitments in the most efficient and effective manner.

We are inviting early written comments, and will hold face-to-face consultation sessions in the fall. Our objective is to finalize the rules of the system and determine the basic administrative procedures by the end of 2005. This would allow offset credits to be issued on a phased-in basis starting in 2006. Comments on the approach to the Offset System as set out in this paper and the Technical Background Document should be sent to:

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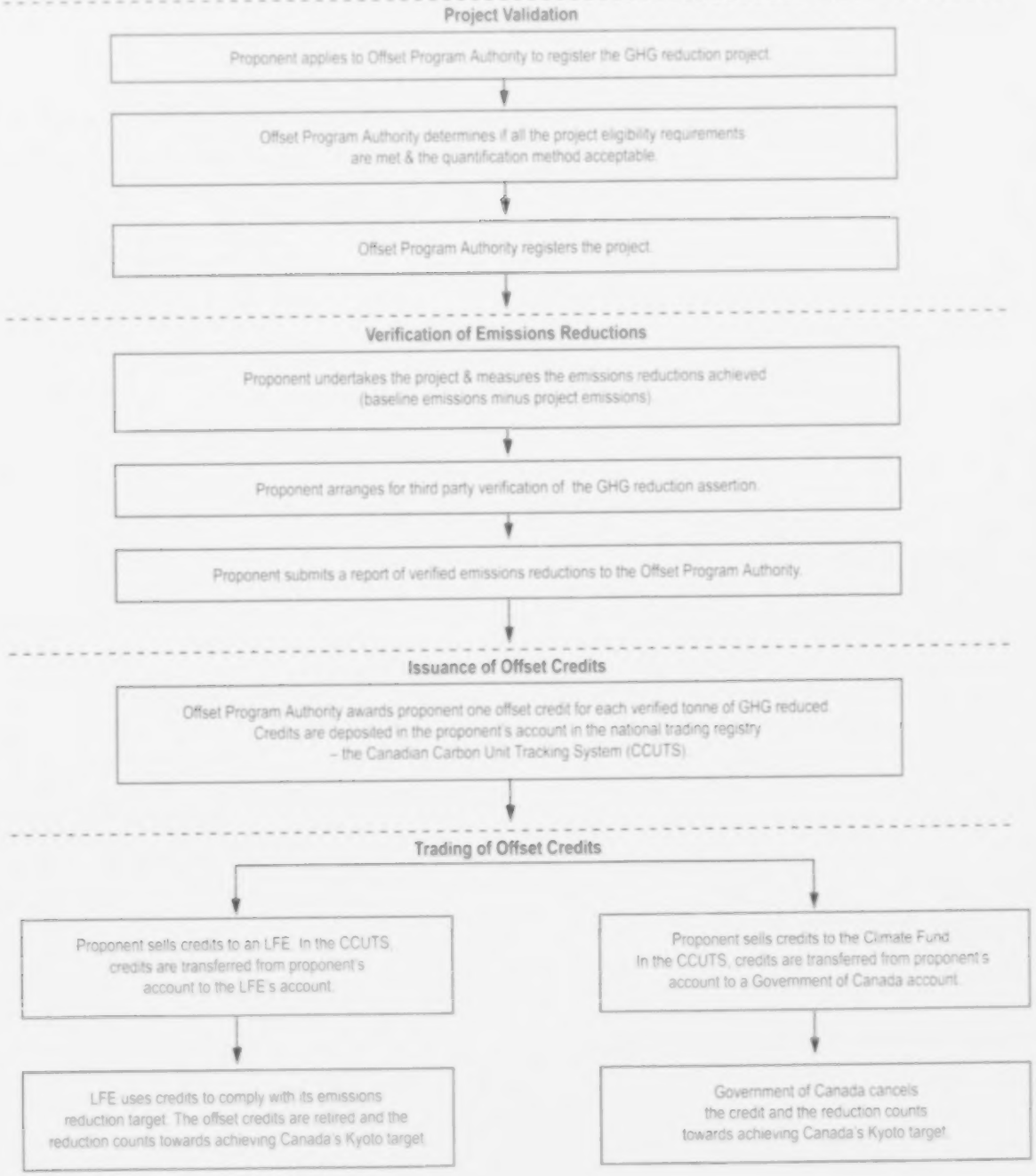
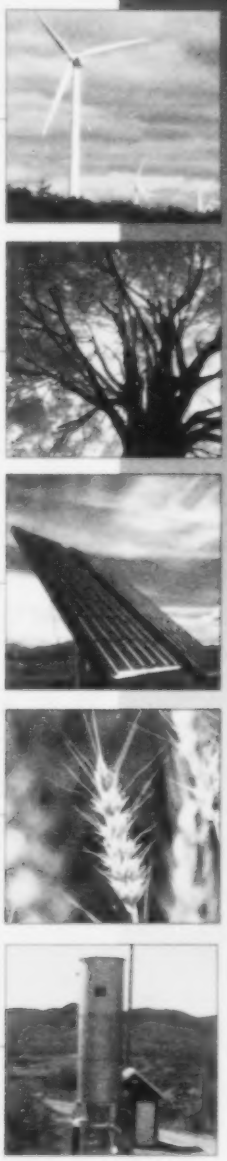
Over the coming months, the government will also be seeking comments on the proposed approach to quantifying emission reductions or removals from specific project types. These consultation documents will be issued for public comment as they become available.

ANNEX 1

PROCESS FOR CREDIT CREATION


Project Validation
Proponent applies to Offset Program Authority to register the GHG reduction project.
Offset Program Authority determines if all the project eligibility requirements are met & the quantification method acceptable.
Offset Program Authority registers the project.
Verification of Emissions Reductions
Proponent undertakes the project & measures the emissions reductions achieved (baseline emissions minus project emissions).
Proponent arranges for third party verification of the GHG reduction assertion.
Proponent submits a report of verified emissions reductions to the Offset Program Authority.
Issuance of Offset Credits
Offset Program Authority awards proponent one offset credit for each verified tonne of GHG reduced. Credits are deposited in the proponent's account in the national trading registry – the Canadian Carbon Unit Tracking System (CCUTS).
Trading of Offset Credits
Proponent sells credits to an LFE. In the CCUTS, credits are transferred from proponent's account to the LFE's account.
LFE uses credits to comply with its emissions reduction target. The offset credits are retired and the reduction counts towards achieving Canada's Kyoto target.
Proponent sells credits to the Climate Fund. In the CCUTS, credits are transferred from proponent's account to a Government of Canada account.
Government of Canada cancels the credit and the reduction counts towards achieving Canada's Kyoto target.

Offset System for **Greenhouse Gases**



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Technical Background Document

This technical paper provides the criteria and process for creating greenhouse gas offset credits that is consistent with classical project-based crediting systems. It is built on the International Organization for Standardization (ISO) framework for greenhouse gas projects (ISO/DIS 14064-2), and incorporates elements of the Clean Development Mechanism and the experience gained in the Canadian pilots – the Greenhouse Gas Emission Reduction Trading (GERT) initiative and the Pilot Emission Removals, Reductions and Learnings (PERRL) initiative, and from the Ontario Emission Trading System.

It is recognized that the complexity of such a system could be a barrier to participation. Thus at each stage of the credit creation process steps to streamline the implementation have been incorporated into the system design. Further suggestions that could improve the efficiency of delivery of the Offset System and minimize administration and transaction costs would be welcome and given full consideration

[1] This paper provides the technical information required by potential Project Proponents and others evaluating the proposed design of the Offset System for large projects.

[2] **Section I** - outlines the process for the creation of offset credits

Section II - outlines the eligibility criteria for offset projects and their reductions/removals, as well as the requirements for quantification and verification

Section III - outlines specific requirements for sink projects and projects involving indirect emission reductions in the electricity sector

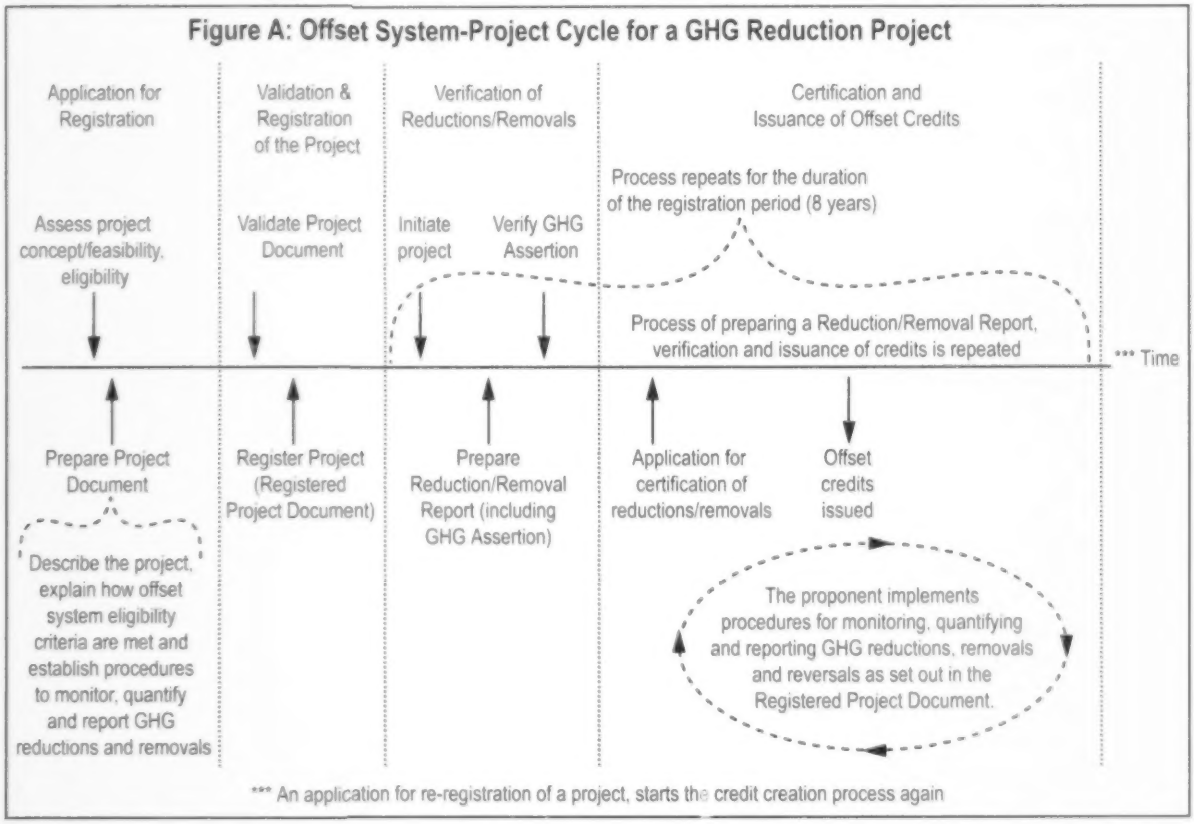
I. Process to Create Offset Credits

[3] The process to create offset credits is divided into four stages

1. Application for project registration
2. Validation and registration of a project
3. Verification of reductions/removals achieved from a registered project
4. Certification and issuance of offset credits and tracking of offset credits

[4] Figure A provides an overview of the full project cycle for an offset project.

Figure A: Offset System-Project Cycle for a GHG Reduction Project


Application for Registration
Validation & Registration of the Project
Verification of Reductions/Removals
Certification and Issuance of Offset Credits
Process repeats for the duration of the registration period (8 years)
Assess project concept/feasibility, eligibility
Validate Project Document
Initiate project
Verify GHG Assertion
Process of preparing a Reduction/Removal Report, verification and issuance of credits is repeated
*** Time
Prepare Project Document
Register Project (Registered Project Document)
Prepare Reduction/Removal Report (including GHG Assertion)
Application for certification of reductions/removals
Offset credits issued
Describe the project, explain how offset system eligibility criteria are met and establish procedures to monitor, quantify and report GHG reductions and removals
The proponent implements procedures for monitoring, quantifying and reporting GHG reductions, removals and reversals as set out in the Registered Project Document.
*** An application for re-registration of a project, starts the credit creation process again

[5] Each stage in the Offset System project cycle is described below.

A. Application for Project Registration

[6] The Project Proponent will assess the feasibility and eligibility of potential projects for registration in the Offset System.

[7] The Project Proponent will prepare a *Project Document* that describes how the project meets, or will meet, all of the Offset System eligibility criteria. The *Project Document* also describes how the GHG reductions and/or removals resulting from the project will be quantified and verified.

[8] To facilitate participation in the Offset System, guidance documents will be available and quantification protocols that have been pre-approved will be available for some project types.

[9] When completed, the Project Proponent submits the *Project Document* to the Program Authority and pays the application fee.

B. Validation and Registration of a Project

[10] The Program Authority performs a completeness review of the *Project Document*. If the *Project Document* is incomplete, the Project Proponent is informed of the deficiencies and may reapply by submitting a revised *Project Document* to the Program Authority and, once again, paying the application fee. If the *Project Document* passes the completeness review, the application section of the *Project Document* which describes the project its location and identifies the owners of the project, will be posted on the Offset System Registry for review by the public.

[11] If no ownership issues are raised during the public posting, the project is placed in a queue for validation, and the Project Proponent pays the validation fee to the Program Authority. If a competing claim for ownership of the reductions/removals achieved by the project is made, the validation of the project is delayed by the Program Authority until the ownership issue has been satisfactorily addressed.

[12] The Program Authority determines the appropriate review queue for the project. Assigning projects to different queues is intended to improve the efficiency of the validation process. For example, since the validation of projects using a pre-approved quantification protocol will generally be relatively simple, these projects will be assigned to a separate queue to ensure they are not delayed by projects that require a full review of their quantification methodology.

[13] Projects will be validated by the Program Authority; in other words, projects will be assessed to determine if they meet (or will meet) all of the Offset System eligibility criteria, and if the proposed quantification and verification methodologies meet the requirements for participation in the Offset System. During the validation process, the Program Authority may seek input from outside experts.

[14] The Program Authority may request additional information or revisions to portions of the *Project Document* through written information requests. A maximum of two information requests per project is allowed.

[15] If the Program Authority is still not satisfied with the information provided in response to the request(s), the project will not be registered as an eligible offset project. In this case, the Project Proponent is informed of the decision in writing and may begin the application

process again by submitting a revised *Project Document* to the Program Authority and paying the application fee.

[16] If the project is accepted, the Program Authority prepares a *Registered Project Document* in consultation with the Project Proponent. The project is registered once this process is completed.

[17] The *Registered Project Document* contains or references all requirements the project must comply with to be issued offset credits. The *Registered Project Document* is posted on the Offset System Registry. Confidential information will not be posted.

C. Verification of Reductions/Removals Achieved from a Registered Project

[18] Once the project is implemented, the Project Proponent prepares a *Reduction/Removal Report* detailing the implementation of the project, the GHG reductions/removals achieved by the project, and the reversal of any previously stored GHG for which credits have been issued. The *Reduction/Removal Report* includes a one-paragraph *GHG Assertion* signed by the Project Proponent. The Assertion specifies the reductions/removals of GHG claimed for a specified period, and confirms that all requirements set out in the *Registered Project Document* have been met.

[19] The Project Proponent hires an accredited Verification Body to verify the *GHG Assertion*. The Verification Body prepares a *Verification Report* and submits it to the Project Proponent.

D. Certification, Issuance and Replacement

[20] To request the issuance of offset credits, the Project Proponent submits the *Reduction/Removal Report* and the *Verification Report* to the Program Authority and pays the certification fee. The Program Authority determines if all the requirements of the System have been met and the number of offset credits to be issued to the Project Proponent. In the case of a sink reversal, the number of credits to be replaced by the Project Proponent is also determined. The Program Authority records this information in the *Certification Report*.

[21] If offset credits have been created, the Program Authority issues the offset credits and arranges to have them deposited in the account(s) in the national trading registry as specified in the *Registered Project Document*.

[22] The Program Authority directs the Offset System Registrar to post the *Reduction/Removal Report*, *Verification Report* and *Certification Report* on the Offset System Registry. Confidential information will not be posted.

E. Re-registration

[23] The registration period for projects is eight years. If the GHG reductions/removals achieved by the project are expected to continue beyond the registration period, the Project Proponent may apply to re-register the project. An updated *Project Document* and the re-registration

fee must be submitted to re-register the project. The new *Project Document* will reflect the conditions (rules and baselines) that would be encountered by a new project. The relevant baseline at the time of re-registration may result in a reduction in the potential of the project to generate offset credits. In fact, there will be no guarantee that the project will earn any offset credits if re-registered.

[24] The review of the *Project Document* at re-registration will generally be much simpler than was the case for the initial registration because some information validated before will still be current.

[25] After reviewing the new *Project Document*, the Program Authority will make the decision to either accept or reject the project for re-registration. A project accepted for re-registration will have a new *Registered Project Document* prepared by the Program Authority with input from the Project Proponent.

II. Requirements

[26] This Section outlines the requirements of the Offset System including

- eligibility criteria for projects and for reductions/removals from eligible projects
- quantification requirements
- verification requirements

A. Eligibility Criteria

[27] The Offset System will establish eligibility criteria for offset ***projects*** and ***reductions/removals*** from eligible projects. The Project Proponent must provide in their *Project Document* all the information necessary to satisfy the Program Authority that the project meets the eligibility requirements of the system.

A.1 Included in the Scope of the Offset System

[28] Generally an offset project must result in greenhouse gas reductions/removals from sources/sinks that are included in Canada's inventory for Kyoto compliance. Exceptions to this requirement will be set out in the system rules. For example, even if Canada elects to exclude forest management, cropland management and/or grazing land management from its Kyoto reporting, projects in these areas that are good for the environment and that could prepare Canada to meet more stringent GHG obligations in the future may still be eligible to earn offset credits.

[29] Project types that result in indirect emission reductions will be included within the scope of the Offset System. For example, a project that involves additional production of non-emitting electricity from a wind farm that results in an emission reduction from reduced thermal power production could be an offset project. (Section III B of this paper describes how electricity related projects will be treated.)

[30] There will be a *de minimis* threshold to screen out projects whose size would not support the administrative costs associated with the system. However, to facilitate the participation of smaller projects the development of a "micro" project stream is being considered.

[31] An offset project must have a Project Start Date no earlier than January 1, 2000. The Project Start Date is defined as the date the initial reductions/removals from the project occur. This information must be verifiable. Reductions/removals achieved during the project testing stage, as defined by the Program Authority, will not be considered when establishing the Project Start Date.

[32] Where the Project Start Date is more difficult to verify at the individual project level than at an aggregate level, a quantification methodology may be devised to allow the participation of a group or 'pool' of Project Proponents in the Offset System. For example, though there may be insufficient historical evidence on the soil management practice at the farm level, information may be available at the provincial or regional level to allow development of a credible baseline for carbon sequestered at the Project Start Date. (See Section III A.4 of this paper for an example.)

A.2 The Reductions/Removals from a Registered Offset Project must be Quantifiable

[33] GHG reductions/removals are calculated as the difference between what the emissions/removals would have been in the absence of the project and the emissions/removals with the project in place. In most cases this will involve the establishment of a counterfactual project baseline scenario. In other cases the baseline will be incorporated in the establishment of a prescribed emission factor to be used in the calculation of the reductions/removals achieved from implementing the project activity.

[34] Quantification requirements are discussed in Section II C.

A.3 Achieve Reductions/Removals within the Registration Period

[35] A registered offset project can earn offset credits for reductions or removals achieved for a period of 8 years. The registration period begins on the date the project is registered.

[36] The registration period for all projects will extend beyond the 2008—2012 commitment period of the Kyoto Protocol. It is expected that international agreements and domestic policies to limit greenhouse gas emissions will be in place after 2012, and the Government of Canada is committed to continuing the issuance of offset credits as long as there are registered offset projects. The value of these credits (if any) will be determined by the market.

[37] A project could be re-registered only if registration periods are contiguous – that is, there can be no gaps between registration periods. A project that is not re-registered before the end of the current registration period is considered terminated and is not eligible to reapply as a new project. This requirement will prevent proponents from shifting emissions between

time periods, or releasing sequestered GHG while not registered and then seeking credits for sequestering more GHG.

[38] A project must be re-validated at the time of re-registration.

Re-validation of a project at re-registration will be more streamlined than during the initial registration process. It is expected that most of the quantification methodology will still be valid, as the GHG sources, sinks and reservoirs relevant to the project would not likely change at re-registration. At re-registration the baseline must be revised to reflect what would have occurred without the project if it were initiated at the time of re-registration given the current circumstances and technology available.

A.4 An Offset Project must be Real

[39] An offset project must involve a specific and identifiable action that results in net GHG reductions/removals.

[40] In most project-based GHG crediting systems this criterion is designed to ensure there is a 'real' environmental benefit – for example, to ensure the effect of all six gases identified in the Kyoto Protocol and possible "leakage" to another site/source are accounted for. These considerations are covered in the quantification requirements of the Offset System.

A.5 The Reductions/Removals from a Registered Offset Project must be Surplus

[41] The reductions/removals will only be eligible to generate credits if

a) the emissions/removals are not covered by a federal GHG regulation
b) the reductions/removals exceed the performance level (tonnes/year) specified for a project that receives an incentive included on the List of Climate Change Incentive Measures

[42] Initially, the only relevant federal GHG regulation will be the Large Final Emitter regulation. One incentive measure on the List will be the Partnership Fund. The objective is to ensure that the Offset System is equitable across jurisdictions and that the incentives are sufficient to encourage the required transformation of the Canadian economy. The design allows for other regulations and incentive measures to be captured by the surplus criterion in the future.

[43] The Surplus criterion will be evaluated at each issuance of offset credits and any change must be reflected in the quantification of the project baseline.

A.6 The Reductions/Removals from a Registered Offset Project must be Verifiable

[44] An accredited Verification Body must be able to verify the reductions/removals have been achieved as claimed.

[45] Verification requirements are discussed later in Section II D.

A.7 The Reductions/Removals from a Registered Offset Project must be Unique

[46] A GHG reduction/removal can be used only once to create an offset credit in the national Offset System.

A reduction covered in the Large Final Emitters system cannot also generate an offset credit.

[47] To ensure that an emission reduction/removal by a source, sink or reservoir is not credited more than once in the national system will require that

- the activity that can claim the reductions/removals is defined, and the owner of the reduction/removal is identified,(e.g., the validation of a reduction/removal as both a direct and indirect emission reduction is avoided)
- the system is sufficiently transparent to allow identification of projects where 'double issuance' could be an issue, (e.g., information on projects registered or applying for registration as offset projects will be publicly available on the Offset System Registry)
- each offset credit is assigned a unique serial number and a link with the trading registry is maintained so that credits can be tracked from issuance to retirement

[48] If 'double issuance' is detected after a project has been registered, the Program Authority will suspend further issuance of offset credits. Further action could be taken if it is determined that false or misleading information was provided to the Program Authority. Credits that have already been sold will not be cancelled or discounted.

[49] Rules relating to the use of offset credits will be established outside the Offset System – for example, in the regulations supporting the Large Final Emitters system and in the mandate for the Climate Fund announced in Budget 2005. The Offset System design must ensure the source of each offset credit (the reduction/removal) can be easily identified and the status of each offset credit (banked, used) can be readily determined, this will be achieved through data sharing between the national trading registry and the Offset System Registry regarding the status of offset credits in circulation.

A.8 Ownership of Reductions/Removals

[50] A project must be submitted, and registered, under the legal name of a single individual or entity – the Project Proponent.

[51] The Offset System design does not restrict the Project Proponent to a particular individual or entity, such as the owner of the land or the investors in the project. However, specifying that there must be a single person or entity to serve as the Project Proponent clarifies the responsibility for resolving ownership issues and simplifies communication with the Program Authority. The Program Authority will issue the offset credits to an account/accounts in the trading registry as specified by the Project Proponent in the *Registered Project Document*.

[52] The Project Proponent will provide evidence in the *Project Document* to support its ownership claim. The evidence could take the form of quit claims or other private contracts with potential claimants, and where warranted, in an 'ownership agreement' between project partners and the Project Proponent. In the case of offset projects on Crown land, registration will be contingent on a legal agreement between the Crown jurisdiction (e.g., province) and the Project Proponent on the ownership of credits resulting from the project.

[53] All parties that may have a valid legal or financial interest in the project must be identified by the Project Proponent. The Program Authority will post the application portion of the *Project Document* (including a list of partners in the project) on the Offset System Registry before validation to facilitate identification of possible competing ownership claims. If a competing ownership claim is raised, review of the proposed project will be delayed until the Program Authority is satisfied that ownership of the offset credits has been resolved. To address problems that could arise if ownership disputes are not resolved expeditiously, a default rule on ownership is being evaluated.

[54] If an ownership dispute arises after the credits have been issued, the Project Proponent will be responsible for addressing the claim, and if necessary, for settling with the claimant.

B. Guidance Documents for Quantifying/Verifying Reductions/Removals

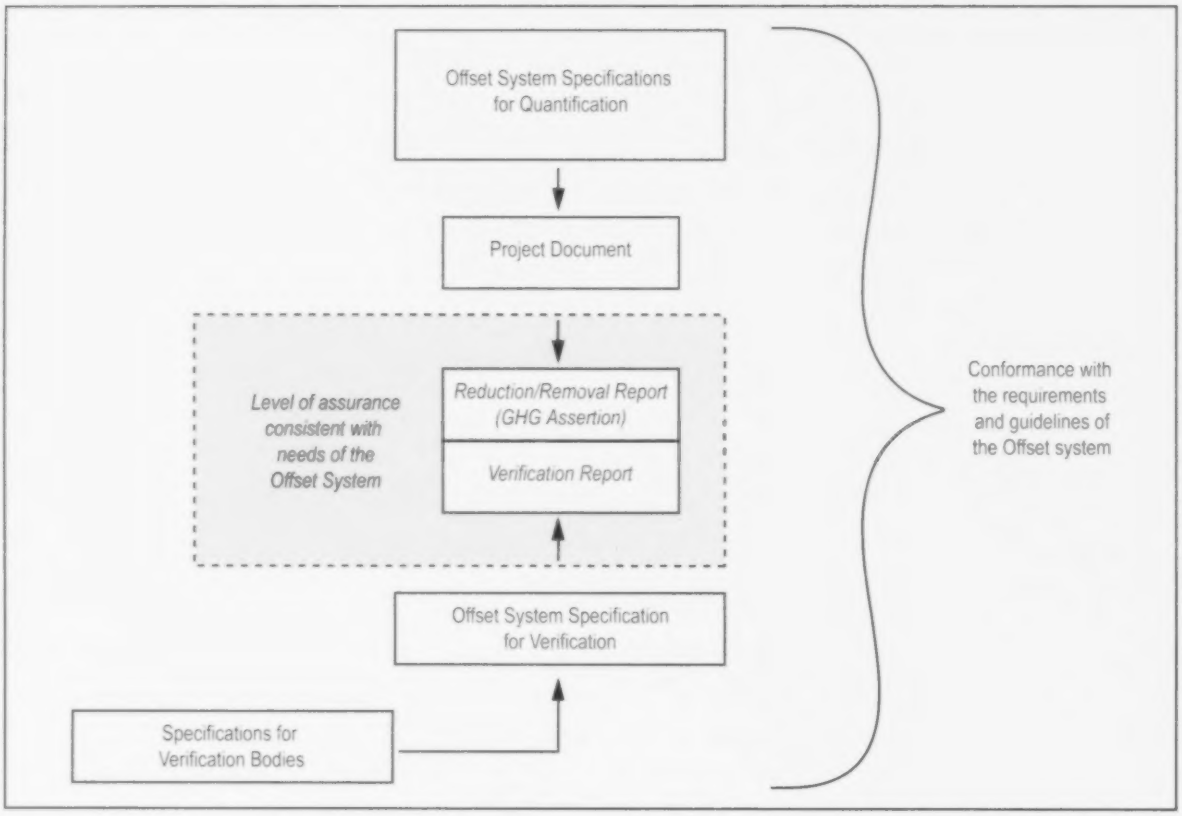
[55] To ensure the integrity of the Offset System, the Project Proponent will be required to quantify the emission reductions/removals achieved using the methodology presented in Section C below. In addition, the claimed GHG reductions/removals must be verified by an accredited independent third-party. The verification requirements are discussed in Section D below.

[56] Figure B illustrates how the quantification and verification specifications contribute to the integrity of the Offset System.

[57] *Offset System Specification for Quantification* (OSSQ) will specify the core requirements and guidance for all quantification methodologies considered in the Offset System. It will complement the *ISO 14064 Part 2 Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements* draft international standard.

[58] For additional information the reader can refer to the draft international standard 14064 part 2 (www.iso.org).

Figure B


Offset System Specifications for Quantification
Project Document
Level of assurance consistent with needs of the Offset System
Reduction/Removal Report (GHG Assertion)
Verification Report
Offset System Specification for Verification
Specifications for Verification Bodies
Conformance with the requirements and guidelines of the Offset system

[59] The OSSQ will set out the requirements for developing or selecting and justifying a quantification methodology for a project. It will also provide guidance on how the System rules will be implemented and how the Offset System principles should be used to justify the validity of a project.

[60] *Offset System Specification for Verification* (OSSV) will specify the core requirements and guidance for verification in the Offset System. It will be based on and reference the *ISO 14064 Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions.*

[61] This document will provide the Project Proponent and Verification Bodies with specifications and guidance for verification of *GHG Assertions* and the supporting evidence required in the *Reduction/Removal Reports.* During the development of a quantification methodology, the monitoring, data management and reporting procedures that must be implemented to enable the verification of the reductions or removals achieved will be identified.

C. Quantification Requirements

[62] The reductions/removals achieved by an offset project are quantified as the difference between the emissions/removals that would have happened without the project (the baseline scenario) and the emissions/removals resulting from the activity (the project scenario).

[63] A Project Proponent will have the following options for quantifying the GHG reductions/removals achieved from the project:

- use an *Offset System Quantification Protocol* (OSQP) if a suitable one is available
- develop a quantification methodology for the project

These options are further described below.

C.1 Development and Use of Offset System Quantification Protocols

[64] An *Offset System Quantification Protocol* (OSQP) is a protocol pre-approved for use in the Offset System by a specific project-type. An OSQP will not be available for every project-type.

[65] Use of an OSQP will reduce the cost of developing a project application, and will allow for a more streamlined and predictable validation of the project.

[66] Initial work to develop OSQPs is proceeding in parallel with the finalization of the ISO standards and development of the Offset System specifications. A number of Technical Working Groups under the umbrella of the federal/provincial/territorial National Offset Quantification Team (NOQT) are preparing 'seed documents' for standardization, building on existing protocols from the Canadian pilots (PERRL and GERT), TEAM, CDM/JI and other initiatives when available. This work focuses on project types that provincial/territorial members of the NOQT have identified as priorities for their jurisdictions.

[67] The development of an OSQP begins with the preparation of a draft quantification methodology applicable to a specific project type. A Standard Development Organization - a nationally recognised body involved in the development and application of standards that establish accepted practices, technical requirements and terminologies for products, services and systems, will then ensure that the OSQP is consistent with the overall ISO framework, that it meets the specifications of the domestic Offset System, and that it has the support of key stakeholders for the project type.

[68] Once the Offset System specification and guidance documents are complete (see Section II B above), any stakeholder could attempt to have a quantification protocol standardized by a Standard Development Organization.

[69] At the request of the protocol developer, the Program Authority will validate the standardized protocol and register it as an OSQP if it meets the Offset System requirements.

[70] A Project Proponent that uses an OSQP must demonstrate that the proposed project is within the scope of the OSQP and that any adjustments made to better fit the project circumstances are explicitly allowed for in the OSQP.

[71] The OSQP would be used by the Project Proponent via reference. That is, the Project Proponent is not required to explain and justify the methodology or to reproduce the text of the OSQP in their *Project Document*.

[72] The Program Authority will validate that the project type is within the scope of the OSQP and that any adjustments made by the Project Proponent are allowed for in the OSQP.

C.2 Development of a Quantification Methodology for a Project

[73] If a suitable OSQP is not available for a project type, the Project Proponent will propose a quantification methodology in the *Project Document*. The proposed quantification methodology must be validated by the Program Authority as part of the project validation.

[74] The Offset System will establish mandatory ***principles*** and criteria for the quantification methodologies, and the ***process*** required for their development. As appropriate, the Program Authority will complement the *Offset System Specification for Quantification* with criteria, procedures, methodologies and guidance required for use with specific project types.

[75] The ***principles*** for quantification in the Offset System are:

- Completeness – Include all relevant GHG emissions and removals. Include all relevant information needed in order to issue valid offset credits
- Consistency – Ensure that the methodologies for comparable projects yield similar net reductions/removals and ensure consistency among the elements of a *Project Document*
- Accuracy – Reduce bias and uncertainties as far as practical
- Transparency – Disclose sufficient and appropriate GHG-related information to allow the Program Authority and verifiers to make decisions with reasonable confidence
- Relevance – Select GHG sources, GHG sinks, GHG reservoirs, data and methodologies appropriate to the needs of the intended user

[76] These principles are based on the current draft of ISO 14064 part 2, and are included here to assist the reader in understanding (without reference to another document) the proposed Offset System principles for quantification. It should be noted that the principles adopted in the Offset System design may not be identical to those included in the final ISO 14064 part 2 standard. For example, it is proposed not to include the principle of conservativeness as a principal of the Offset System, as a bias towards reducing the incentives provided to Proponents where there is uncertainty would conflict with the Offset System objective of promoting the transformation to a less GHG intensive Canadian economy (for additional guidance on the these principles see the text box included at the end of section II C).

[77] Details of the ***process*** used to develop the quantification methodology - the criteria and procedures used to select or develop various aspects of the quantification methodology and the information on how they were applied - must be provided to the Program Authority by the Project Proponent.

[78] A Project Proponent proposing a quantification methodology must demonstrate and document that each element of the methodology complies with the requirements (principles, criteria, procedures and methodologies) of the Offset System. That is, to enable the Program Authority to validate the quantification methodology, the justification must be provided for

- why decisions were made
- how decisions are appropriate for the project specific circumstances
- why alternative options were rejected

C.3 Required Elements of a Quantification Methodolgy

[79] The *Offset System Specification for Quantification* requires the quantification methodology include the following elements:

1. description of the project
2. identification of sources, sinks and reservoirs (SSR) for the project
3. selection of the baseline scenario
4. identification of SSR for the baseline scenario
5. selection of 'relevant SSR' for quantification
6. establishment of 'relevant SSR' that require monitoring
7. selection of quantification methodologies for emissions and removals from 'relevant SSR'
8. quantification of emission reductions, removal enhancements or reversals

Each of these elements is addressed in turn.

1. Description of the project

[80] The project description must provide a comprehensive description of the technologies, products/services and include a rough estimate of the expected level of activity.

[81] Requirements listed in Section 5.2 of the ISO 14064 part 2 draft international standard will be mandatory in the *Offset System Specification for Quantification*, with the following modifications

- The Offset System will provide an opportunity for public comment during the validation process. Information on prior consultations will not be required
- Information on the environmental impact assessment (if any) will not be required (Project approvals will be addressed in other programs)

- The Project Proponent of a sink enhancement project must specify the type of credits to be issued – temporary credits or offset credits (see Section III A of this paper for related information on sink projects) and the periodicity of certification

As an estimate of the reductions/removals from the project during the eight year registration period may be required by potential buyers of offset credits, the Project Proponent has the option to include this information in the *Project Document*. The estimate will not be validated by the Program Authority; validation of the project will not imply that the Program Authority supports the estimate of expected reduction/removals included in *Project Document*.

[82]

2. Identification of sources, sinks and reservoirs (SSR) for the project

- The Project Proponent will identify all SSR that are controlled, related and affected by the project
- The Project Proponent will justify any non mandatory criteria and procedures (beyond those set out in the Offset System Specifications for Quantification) that are used to identify the SSR of the project

[83] Other programs have used the term "leakage" to refer to changes in emissions and removals from/to SSR that are not under the control of the Project Proponent but are affected by the project through activity shifting or market effects. *The Offset System Specifications for Quantification* uses the term "affected" to address these SSR.

3. Selection of the baseline scenario

[84] In this step the Project Proponent must identify what would have happened during the registration period without the project. (In a subsequent step the Project Proponent will establish the methodology to quantify the emissions and removals associated with this scenario).

[85] The Offset System will allow the use of baselines that reflect specific project circumstances to encourage innovation and a wide range of project types.

[86] The Project Proponent must justify the criteria and procedures used to establish the baseline scenario that best represents the activities that would occur in the absence of the project.

[87] The mandatory criteria and procedures set out in the *Offset System Specification for Quantification* must be included when selecting the baseline. For example each type of baseline identified by the Program Authority in the Offset System Specifications for Quantification document must be considered; justification for rejecting a baseline is required. In addition, equivalence between the project and the baseline in type and level of activity and/or products is required, though the equivalency need not be strictly applied (i.e., production of the same product or services or exactly the same level of production is not necessary).

[88] A baseline prescribed by the Program Authority must be used for certain project types.

[89] The Project Proponent is required at a minimum to consider the baseline types summarized below.

a) Baseline scenario based on the current situation (existing activities)

- This approach is straightforward and provides certainty for Project Proponents. However, it would not be appropriate for project types where the current situation cannot be expected to last for the length of the registration period (e.g., where existing equipment comes to the end of its useful lifetime during the registration period)
- This scenario may not be used in sectors where the capital turnover is slow and the gains achievable using commercially available technologies are significant. For example, the current situation will not be suitable for the retrofit of a 20 year old boiler that has an energy efficiency rate less than the boiler generally available for replacement
- The Program Authority may publish criteria and guidance projects using this baseline approach must meet

b) Baseline scenario based on comparison approach

- Comparable activities could be the basis for the baseline scenario if the relevance of the group of projects (do not have to be offset projects) used for the comparison can be justified
- Projects with potential for replication across many individual units are most conducive to this approach (e.g., energy efficiency initiatives, land use and forest projects)
- This approach is readily verifiable, and adds considerable transparency and consistency to the basic scenario approach though monitoring and verification costs will likely be higher (It is possible that a control group may be used for more than one project)

c) Forward-looking baseline scenario (projection-based)

- Where project-specific circumstances are important, the baseline scenario may be a construct of what would have happened for the elements of the project
- This approach would be relevant for new project types or for situations where comparable projects are not available/limited
- A variety of techniques, from simple straight-line growth assumptions to models, can be used to project what would have occurred in the absence of the project, the validity of the technique chosen will be assessed during the validation of the project

d) Baseline scenarios already registered

- The Project Proponent should consider the baselines that have been validated/registered for similar projects and that are posted on the Offset System Registry
- It is important to note that decisions that have been taken by the Program Authorities will not be precedent setting – that is, each project and *Project Document* will be considered separately

[90] Guidance will be given to proponents on procedures that can be used to establish and select the baseline scenario. For example, the Proponent may establish a list of potential alternatives and rank them using barriers and criteria to find out which scenario would be the best alternative to the project scenario (barrier test).

[91] Requiring that the type and level of activity and/or product be equivalent in both the baseline and the project is designed to ensure that all relevant emission sources are accounted for. If a project lowers production by a controlled source, an associated increase in production by an affected or related source must be considered in the quantification to achieve the required equivalency in output.

4. Identification of SSR for the baseline scenario

- The Project Proponent will identify all SSR that are controlled, related and affected under the baseline scenario
- The Project Proponent will justify criteria and procedures used to identify the SSR for the baseline

[92] In cases where the baseline represents only a small variation from the project, the criteria and procedures used for identifying the project SSR could easily be justified as appropriate for identifying the SSR for the baseline. In other cases, the baseline may represent a very different set of activities and the proponent will have to justify and apply different set of criteria and procedures to identify the SSR for the baseline.

5. Selection of 'relevant SSR' for quantification

[93] This step identifies the SSR that need to be quantified. If the set of SSR considered is not comprehensive, the project may result in the issuance of credits for a shift in emissions to other sources. This would undermine the integrity of the Offset System.

- The Project Proponent must justify criteria and procedures used to identify the 'relevant SSR' in the project and the baseline scenario
- The Project Proponent must use/include the following mandatory criteria when selecting 'relevant SSR'. The SSR is relevant if
  - included only in the project or only in the baseline scenario
  - emissions/removals for the SSR change from the baseline scenario to the project
- SSR included in the Canada's National Inventory for Kyoto reporting are relevant unless guidance from the Program Authority specifies that other SSR can be included
- The Project Proponent must justify why a SSR identified in the project scenario or the baseline scenario is excluded from the list of 'relevant SSR'

[94] Indirect emission reductions can be included as affected or related sources, but the Project Proponent will have to justify that the project influences these sources.

6. Establishment of relevant SSR that will require monitoring - that is continuous or periodic quantification

[95] The Project Proponent will be required to identify all GHG sources and sinks controlled by the proponent, as well as those related to or affected by the project and the baseline. However, the quantification of GHG emissions and removals generally does not involve all of these SSR.

- The Project Proponent will justify criteria and procedures used for selecting relevant SSR that will be monitored
- The Project Proponent will identify the relevant SSR for monitoring
- The Project Proponent of sink projects will identify the relevant reservoirs for both the baseline and the project that will be monitored to ensure that reversals of removals are quantified

[96] Monitoring – the continuous or periodic quantification of all relevant SSR could be very costly and may not be necessary to meet the Offset System requirements. Some SSR can be quantified by estimation or measurement during the planning stage of a proposed project.

[97] When the level of emissions/removals can vary significantly and are difficult to estimate in advance, the SSR should be monitored regularly. This is valid for both the project and the baseline scenario.

[98] Monitoring of the baseline should include the effect of activities/events that are not part of the project but that can affect the emissions/removals under the baseline scenario. This is necessary to ensure that only the reductions/removals due to the project are claimed.

[99] If there are SSR that must be monitored in the baseline scenario, the baseline will be referred to as a 'dynamic baseline'. Dynamic baselines specify how the baseline will be quantified based on factors, conditions or events as they occur. The emissions associated with a dynamic baseline will generally be quantified ex-post.

[100] To justify the use of a static baseline (a baseline estimate that is fixed for the registration period) the Project Proponent must demonstrate that the baseline circumstances will not result in an over estimation of GHG reductions or removals achieved by the project during the registration period.

[101] The Project Proponent will weigh the costs of monitoring against the potential value of offset credits, when deciding whether or not to quantify a SSR. This choice however can not result in overestimating the reductions/removal enhancements. For example, a Project Proponent may decide not to monitor an affected source whose emissions will be reduced by the project because the monitoring cost would exceed the estimated additional value of the offset credits generated by the source. However if the emissions form a source are higher as a result of the project the source must be quantified.

[102] Sink projects for which offset credits have been issued require long-term monitoring to ensure that the requirements associated with the permanency of the removals are met. The Project Proponent must quantify possible reversals of carbon – and thus must justify which reservoirs will be monitored during the liability period and how they will be monitored. The Project Proponent must select these reservoirs on the basis of the longevity of the reservoir and the stability of its stocks given the management and disturbance environment in which the reservoir occurs.

7. Selection of quantification methodologies for emissions and removals from relevant SSR

- The Project Proponent will justify criteria and procedures used to select or establish quantification methodologies for all relevant SSR for the project, the baseline scenario and for each greenhouse gas
- The Project Proponent will use/include the mandatory criteria set out in the Offset System Specification for Quantification to select or establish the quantification methodologies
- The Project Proponent will select quantification methodologies for all relevant SSR for the project and the baseline scenario and for each GHG

[103] Project Proponents will be able to quantify emissions/removals using methodologies that include estimation, modeling, direct measurement, emission/removal factors and calculation from data and information for the project and the baseline scenario, provided that the methodology chosen meets the criteria established.

[104] The Project Proponent should consider industry best practice and other good practice guidance on methods for quantifying the various emissions and removals from SSR.

[105] Program Authority may publish specific guidance on eligible quantification methodologies in the *Offset System Specification for Quantification.*

[106] The quantification methodology for the baseline scenario must be relevant to the type of baseline scenario selected. For example, if the comparison approach is selected for determination of the baseline scenario, the quantification methodology may be based on the quantification of the average emissions and removals of the comparison group.

[107] Emission/removal factors that relate activity data to GHG emissions or removals are widely used for quantifying GHG emissions. For example the emissions from fossil fuel combustion are often based on a measure of fuel consumption (e.g., cubic meters of natural gas) multiplied by the emission factor for the fuel (e.g., kg CO_2e per cubic meter of natural gas).

[108] Project Proponents will be allowed to use emission/removal factors to quantify the emissions/removals of the project and the baseline provided they can demonstrate their use meets the established criteria. The Project Proponent must reference the source of all emission/removal factors used.

8. Quantification of emission reductions, removal enhancements or reversals

- The Project Proponent must justify methodologies established for quantifying emissions reductions and removal enhancements/reversals
- The Project Proponent must quantify emission reductions and removal enhancements by greenhouse gas
- As appropriate, the Project Proponent may quantify emission reductions and removals/reversals directly using a formula (e.g., where emission/removal factors are used)
- The Project Proponent will report the reductions or removals for each GHG and the total GHG reduction or removals expressed in metric tonnes CO_2-equivalent using the Global Warming Potentials contained in the current *Offset System Specification for Quantification*

[109] The Project Proponent will justify the procedures and/or methodologies selected to demonstrate that the quantification methodology meets the requirements of the principles and criteria of the Offset System. The quantification methodology proposed by the Project Proponent must collect sufficient data on relevant SSR to justify the claimed reductions/removals.

[110] The Project Proponent will quantify emission reductions as the differences between the sum of emissions in the baseline scenario and the sum of emissions with the project.

[111] The Project Proponent will quantify removal enhancements or emissions as the difference between the sum of removals or emissions with the project and in the project baseline.

[112] Where a project involves a change in practice, the emission reductions or removals could be calculated directly using an emission/removal factor equal to the difference between the emission/removal factors for the baseline practice and the project practice.

[113] Refer to the Section III of this paper for specific requirements applicable to sink projects.

The following guidance on the principles for quantification is reproduced from ISO 14064-2 DIS.

General

[114] Principles in this part of ISO 14064 are intended to ensure a fair representation and a credible and balanced account of GHG emission reductions and removal enhancements from projects. Principles are used to assist in the general interpretation of requirements. In particular, the principles are intended to apply when judgment and discretion is called for in fulfilling requirements. The principles form the basis for justifications and explanations required in this part of ISO 14064 and users should make reference to the relevant principles and how they have been applied. The application of each principle will vary according to the nature of the judgment involved. Principles should be applied holistically, with each principle considered within the context of the overall

intent of particular clauses. This part of ISO 14064 includes principles common with ISO 14064-1 and unique to this part of ISO 14064.

Completeness

[115] Completeness is usually satisfied by:

- identifying all GHG sources, sinks and reservoirs controlled, related to, or affected by, the GHG project and corresponding baseline scenario
- estimating GHG sources, sinks and reservoirs not regularly monitored or estimated
- ensuring that all information relevant to intended users appears in reported GHG data or information in a manner consistent with established project and baseline boundaries, scope, time period, and objectives of reporting
- considering representative baseline scenarios within the relevant geographic areas and time periods. Where comparable individual GHG sinks, sources and reservoirs cannot be identified in the baseline scenario, appropriate default values and assumptions are used to define baseline GHG emissions and removals. In the absence of such direct evidence, expert judgment is often required to provide information and guidance in establishing and justifying elements of the GHG project plan and GHG reports. This might include the appropriate use of models and conversion factors, as well as estimation of uncertainty. The same will also often apply to the project estimations for GHG removal projects

Consistency

[116] Consistency is usually satisfied by:

- using uniform procedures among projects
- using uniform procedures between the project and the baseline scenario
- using functionally equivalent units, that is, the same level of service is provided by the project and the baseline scenario
- applying tests and assumptions equally across potential baseline scenarios
- ensuring the equivalent application of expert judgment, internally and externally, over time and among projects

[117] The principle of consistency is not intended to prevent the use of more accurate procedures or methodologies as they become available. However, any change in procedures and methodologies should be transparently documented and justified.

Accuracy

[118] Accuracy is usually satisfied by avoiding or eliminating bias from sources within estimations and through describing and improving precision and uncertainties as far as practical. In order to ensure an estimate is as accurate as possible, while reducing the possibility of over-estimating, especially where highly uncertain sources are used, conservativeness is applied.

[119] Project proponents will pursue accuracy insofar as possible, but the hypothetical nature of baselines, the high cost of monitoring some types of GHG emissions and removals, and other limitations make accuracy unattainable in many cases. In these cases, conservativeness serves as a moderator to accuracy in order to maintain the credibility of project GHG quantification.

Transparency

[120] Transparency is usually satisfied by:

- clearly and explicitly stating and documenting all assumptions
- clearly referencing background material
- stating all calculations and methodologies
- clearly identifying all changes in documentation
- compiling and documenting information in a manner that enables independent validation and verification
- documenting the application of principles (eg, in selecting the baseline scenario)
- documenting the explanation and/or justification (eg, choice of procedures, methodologies, parameters, data sources, key factors)
- documenting the justification of selected criteria (eg, for the determination of additionality)
- documenting assumptions, references and methodologies such that another party may reproduce reported data
- documenting any external factors to the project that may affect decisions of intended users

Relevance

[121] Relevance is important in the context of:

- selection of GHG sources, sinks and reservoirs of the GHG project and the baseline scenario
- selection of procedures to quantify, monitor, or estimate GHG sources, sinks and reservoirs
- selection of potential baseline scenarios

[122] Relevance is assessed against the influence on the decisions or conclusions of intended users of the information and may be implemented by defining and justifying qualitative and/or quantitative criteria. For example, minimum thresholds might be used to justify the aggregation of minor GHG sources or in the choice of quantification methodologies or the number of data points monitored. Implementing the principle of relevance can help reduce the cost of GHG projects, however, users of the information still require the ability to make decisions with reasonable assurance as to the integrity of quantification and reporting.

D. Verification Requirements

[123] The core requirements and guidance for verification in the Offset System will be set out in the *Offset System Specification for Verification*, discussed in Section II B above.

[124] The Project Proponent is responsible for selecting an accredited Verification Body, negotiating a contract with the Verification Body, and paying for the verification of the *GHG Assertion*. The contract will establish the objectives, criteria and scope of the verification.

[125] A *GHG Assertion* identifies the project, specifies the period covered, indicates the greenhouse gas reductions or removals (tonnes of CO_2e) claimed, provides other relevant information including a statement addressing conformance to all requirements specified in the Registered Project Document and is signed by the Project Proponent. It is included in and supported by information contained in the *Reduction/Removal Report*.

[126] The Verification Body must determine if the *GHG Assertion* is supported by evidence sufficient to give a high level of assurance that there are no material discrepancies. To the extent possible, the verification requirements (i.e. data streams, documentation requirements, sampling techniques, etc.) will be set out at the validation stage in the *Registered Project Document*. In effect, verification focuses on how accurately the planned processes have been followed and assesses any deviation from that process. The opinion of the Verification Body is provided in a *Verification Report*.

[127] Offset credits under are issued ex-post – thus, the *GHG Assertion* only refers to emission reductions and GHG removals that have already occurred.

[128] *GHG Assertions* must cover contiguous periods within the Registration Period. This is required to ensure that Proponents will report all emissions or reversals that could affect the project without omission of a period that would result in a reversal of credits or in less reductions/removals.

[129] A *GHG Assertion* cannot span more than one Registration Period to ensure that there is only one relevant set of requirements to consider.

[130] The Project Proponent submits to the Program Authority the *Reduction/Removal Report* (containing the *GHG Assertion*) and other reporting requirements specified in the *Registered Project Document* together with the *Verification Report* within 6 months of the end of the period covered by the *GHG Assertion*.

[131] Where evidence will be destroyed by time, the *GHG Assertion* must be prepared and verified before the evidence is lost.

[132] Evidence is most likely to be destroyed over time for projects that use activity-based quantification. For example, agriculture soil sequestration projects that use activity based quantification must report each year after seeding to allow for the verification of the tillage practice employed.

[133] Unless a prior agreement has been made with the Program Authority, the maximum size of an individual claim is limited to

- 100,000 tCO_2e projects using an *Offset System Quantification Protocol*
- 50,000 tCO_2e for projects not using an *Offset System Quantification Protocol*

[134] The maximum size for credit claims is intended to minimize the risk associated with the verification where the quantification methodology the monitoring and data management procedures and the proponents ability to implement them are unproven. Under the proposed limits, a large project may submit several *GHG Assertions* per year, while a small project might submit a *GHG Assertion* less than once per year. Projects that use a quantification methodology that is applied on a yearly basis such as annual carbon sequestration factors for the implementation of no till will not be required to report more than once a year. The Program Authority will only agree to a higher reporting threshold once the project has gone through at least one cycle of reporting and verification.

[135] The Project Proponent may choose when to prepare a *GHG Assertion* based on the value of accrued reductions/removals, internal requirements including shareholder demands, and the rules of the Offset System.

[136] The Project Proponent must make relevant records available to the Program Authority for audit on request.

[137] It is anticipated verifications will be undertaken in accordance with the requirements of the international standard ISO 14064 part 3.

[138] The Project Proponent must make all relevant information available to the Verification Body, including earlier *Verification Reports*.

[139] Verifications will be undertaken at a high level of assurance. The Verification Body will assess the evidence to support the *GHG Assertion* against the materiality threshold and reach one of the following conclusions:

(1) ***No material discrepancies*** – the *GHG assertion* is free from material errors, misrepresentations or omissions

(2) ***Material Discrepancy*** – the Project Proponent's *GHG Assertion* contains a material discrepancy

(3) ***Other qualifications*** – the Verification Body cannot find sufficient evidence to support the *GHG Assertion* or the project has not been implemented as described in the the Registered Project Document and the difference is sufficiently large that verification can not be undertaken

[140] To guide Verification Bodies, the Program Authority will establish a combined percentage and tonnage materiality threshold (e.g., the smaller of 5% and 1000 tCO_2e), and may provide further guidance related to materiality thresholds (e.g., qualitative considerations). Non-

material discrepancies that result in a quantitatively greater claim of GHG reductions or removals must be corrected in future *GHG Assertions* or they will be considered material discrepancies. Material discrepancies (conclusion (2)) are those which extend beyond the materiality threshold. They may be quantitative or qualitative.

[141] In the case of a material discrepancy, the Project Proponent can revise the *GHG Assertion* and its supporting *Reduction/Removal Report* and have the revised *GHG Assertion* verified within six months.

[142] Where the project differs materially from what was described at the validation stage, the Verification Body cannot undertake verification and the Project Proponent must seek re-validation.

[143] The Verification Body will assess the degree of discrepancy between the project as implemented and what was described in the Project Document, using a 'variation threshold' linked to the materiality threshold. If the project must be re-validated, the Project Proponent will have advanced standing in the validation process. If such a project is re-validated and re-registered, the Registration Period starts the day after the end of the last period for which offset credits were issued.

[144] In exceptional cases for conclusions (2) or (3) the Program Authority may decide the quantity of offset credits to be issued.

[145] In the case of conclusions (2) or (3), the Project Proponent is expected to revise the *GHG Assertion* and to have the revised Assertion verified within six months. If the second verification also leads to conclusions (2) or (3) the Project Proponent may request that the Program Authority resolve the situation. The Program Authority will not be obligated to intervene. If the Program Authority chooses to consider the situation, it would review the original and revised *GHG Assertions*, the *Verification Reports*, and a statement by the Project Proponent clarifying why the material discrepancy has not been or cannot be corrected. The Program Authority will then decide on the quantity of offset credits (if any) to be issued.

E. Accreditation of Verification Bodies

[146] Verification Bodies for offset projects will need to be accredited to ensure their competence and independence and to maintain a consistent standard of verification.

[147] Accreditation will be provided by the Minister responsible for the Offset System.

[148] Accreditation requirements set out in the *Offset System Specification for Verification* will include for example, professional qualifications, experience, demonstrated knowledge, on-going training of staff, restrictions on other activities to avoid conflicts of interest and internal procedures for quality control.

[149] A Verification Body cannot verify a *GHG Assertion* in which it has a conflict of interest.

[150] A Verification Body can only verify a *GHG Assertion* within its area of expertise.

[151] A Verification Body must maintain the confidentiality of information provided by the Project Proponent, but will safely and securely maintain records, for a period of 10 years from the date of the *Verification Report*, to be made available for audit by either the accrediting body or the Program Authority.

[152] A Verification Body must notify the Program Authority within 30 days of signing a contract with a Project Proponent for the purpose of verifying a *GHG Assertion*.

E.1 Becoming Accredited as an Offset System Verification Body

[153] Once a Verification Body has been accredited by the Minister, it is eligible to verify *GHG Assertions* relating to offset projects for which it has the requisite technical competence. For example, a Verification Body with expertise only in landfill gas capture would not be qualified to verify a *GHG Assertion* for a soil sequestration project.

[154] To become an accredited Verification Body for the Offset System, an entity will have to maintain its accreditation to the ISO 14065 Standard currently under development.

[155] The body granting the ISO 14065 accreditation will have processes for handling appeals and complaints, and the authority to undertake audits of the Verification Bodies, including on-site audits during verifications. The primary tool for ensuring compliance with the accreditation requirements is the threat of revocation of certification of the Verification Body and associated loss of business and reputation.

[156] The Program Authority further reserves the right to audit Verification Bodies and Project Proponents on either's premises. It is expected that this power would be invoked infrequently, in cases where criminal behavior is suspected.

III. Sector Specific Requirements

A. Requirements for Sink Projects

[157] Sink projects involve the removal of GHGs from the atmosphere and storage in reservoirs or the avoidance of GHG emissions to the atmosphere from a reservoir. Thus, a sink project results in more carbon stored in reservoirs than would be the case without the project (the baseline scenario). Increasing the net carbon stock of non-atmospheric reservoirs is referred to as a 'removal'.

[158] Greenhouse gas removals or avoided emissions via sink projects may not be permanent. Carbon sequestered in forests or agricultural soil sinks is vulnerable to "non-permanence or reversal events" as a result of natural disturbances, such as pest and disease outbreaks and wildfires, or human practices, such as forest harvesting and increased intensity of soil tillage. These disturbances can cause a partial or total loss of the GHGs stored in a reservoir, thus emitting previously stored carbon to the atmosphere.

[159] To manage the potential for a reversal of previously stored carbon, there are a number of design elements and rules specific to sink projects.

A.1 Types of Sink Projects

[160] The three potential types of forest sink projects are

- afforestation/reforestation – creating a forest where none has existed since at least 1990
- avoided/reduced deforestation – avoiding or reducing the permanent loss of a forest
- forest management – certain changes in forest management practices

[161] Agriculture sink projects involve the adoption of agricultural management practices that increase carbon levels in the soil. Potential agricultural sink projects include

- reducing the intensity of tillage operations
- adopting crop rotations and grazing management practices that sequester more carbon in the soil
- increasing the use of permanent cover

[162] Projects (technologies) that capture greenhouse gas emissions and store them in a physical reservoir like a geological formation will be treated as sink projects unless they can demonstrate that the storage is permanent.

A.2 Mechanisms to Address Non-Permanence of GHG removals

[163] The Project Proponent for a sink project must choose one of the following two mechanisms to deal with non-permanence of GHG removals

- the issuance of offset credits with a requirement to maintain the project level of carbon in the reservoir for a set period (the liability period)
- the issuance of temporary credits

[164] A Project Proponent may apply to have their project issued offset credits or temporary credits or both this choices will be recorded in the *Registered Project Document*. If the application is for both offset credits and temporary credits, the areas proposed for each credit type must be explicitly delineated. Quantification will be performed and reported separately for each area. The offset credit replacement liability will apply only to the project area issued offset credits. The option to combine the two credit types into one project could save on administrative fees and verification costs. This flexibility will also allow aggregated projects to include participants that choose to earn different credit types.

A.2.1 Offset Credit with a Liability Period

[165] As explained further below, to ensure the integrity of the system, the Project Proponent must replace credits that are reversed during the liability period by submitting an equivalent number offset credits to the Program Authority.

[166] The liability period is the period of time during which the Project Proponent is required to replace any offset credits affected by a reversal (i.e., carbon stock lost). The liability period will be applied to all offset credits issued for GHG removals or avoided GHG emissions stored in a reservoir as a result of an offset project.

[167] The liability period begins with the issuance of the first offset credit and ends a specified number of years following the issuance of the last offset credit for the project. The length of the liability period is still to be determined.

[168] For a sink project, an offset credit represents 1 tonne of CO_2e removed from (or not emitted to) the atmosphere and stored in a carbon reservoir. As for emission reduction projects, the removals are credited relative to what would have happened in the baseline scenario. An offset credit for a sink project thus represents a tonne of CO_2e that is stored in a reservoir in addition to what would have been stored in the reservoir in the baseline scenario.

[169] The obligation of a sink Project Proponent that received offset credits is to maintain the amount of carbon in the reservoir relative to the amount of carbon that would have been in the reservoir without the project. When a sink project is issued offset credits, the Project Proponent is responsible for maintaining an amount of carbon in the reservoir over the amount of carbon in the reservoir in the baseline scenario, that is equivalent to the number of credits issued.

[170] If a reversal event would have resulted in a reduction of the carbon stock in the baseline scenario, the baseline carbon stock should be revised when quantifying the reversal. For example, a forest management project that is affected by a fire may result in a loss of carbon that exceeds the quantity of carbon for which offset credits have been issued. In such a case it could be assumed, under conditions to be determined by the Program Authority, that a portion of the baseline carbon stock would have been affected by the fire and thus a recalculation of the baseline carbon stock is required. Recalculation of the baseline carbon stock may result in a smaller reversal of credits and the Project Proponent may not have to replace all the credits. This method must be used to recognize that even if more carbon has been reversed than what was added by the project, the project still has a positive impact on the level of carbon in the forest after the fire.

[171] Determining the number of offset credits to be replaced after a reversal event follows the same methodology as is used to calculate the number of offset credits issued to a project. That is, the number of offset credits a Project Proponent must replace in the event of a reversal is equal to the change of the total carbon stock in the reservoir relative to the change of the carbon stock that would have occurred in the baseline scenario. This means that the Project Proponent must periodically report the change in both project carbon stock and the baseline carbon stock until the end of the liability period for the project.

[172] Calculation of removals and reversals

If $(CS_t - BLCS_t) > (CS_{t-1} - BLCS_{t-1})$, the Project Proponent claims offset credits equal to the removals of $[(CS_t - BLCS_t) - (CS_{t-1} - BLCS_{t-1})]$

If $(CS_t - BLCS_t) < (CS_{t-1} - BLCS_{t-1})$, the Project Proponent reports a reversal of credits equal to $[(CS_{t-1} - BLCS_{t-1}) - (CS_t - BLCS_t)]$

Where CS_t is the carbon stock at time t and $BLCS_t$ is the baseline carbon stock at time t.

A reversal could also affect the baseline, as such the baseline should be revised when calculating the reversal.

[173] After the Program Authority has certified the reported reversal, the Project Proponent will be notified of the offset credit replacement obligation. The Project Proponent is required to replace the offset credits within six months of receiving the replacement notice. Offset credit replacement may be achieved by submitting an equivalent number of permanent units - offset credits, ERUs, CERs, AAUs or RMUs.

[174] A project issued offset credits must report in accordance with the schedule included in its *Registered Project Document* until it no longer has an offset credit replacement liability. Thus, projects with an offset credit liability must continue to re-register until they no longer have any offset credit liability. This liability is terminated when the liability period ends or when all the credits have been replaced.

[175] If at any time during the liability period the required *GHG Assertion*, with its supporting *Reduction/Removal Report and Verification Report*, have not been submitted or the project has not been re-registered by the required deadline, the Program Authority will deem a complete reversal to have occurred. The Program Authority will notify the Project Proponent that all outstanding offset credits issued to the project must be replaced.

[176] The re-registration of a sink project receiving offset credits will not result in a reversal of previously issued offset credits due to the new baseline scenario required at re-registration.

[177] When the liability period is over, the Project Proponent is free of any obligations to maintain the carbon stock of the reservoir and the Program Authority has no continued interest in the use of the project area. However, if another project is proposed for the area, the Program Authority will consider the previous project activity during the validation of the baseline for the new project. In doing so, the Program Authority will apply the principle that a Proponent should not be able to draw down the carbon stock after the end of a project liability period and then earn a new stream of offset credits for refilling the reservoir.

A.2.2 Temporary Credits

[178] The temporary credit option was developed to facilitate the participation of Project Proponents that choose not to assume the financial risk associated with the replacement

obligation imposed by the offset credit liability period. Instead of issuing an offset credit when a tonne of CO_2e has been sequestered and then requiring the Project Proponent to maintain carbon stock, a temporary credit is issued each year the tonne is maintained in the reservoir until the end of the temporary credit crediting duration.

[179] If there is a reversal of carbon stored in the reservoir, there is no replacement obligation for temporary credits. However, the number of temporary credits that will be issued in the following year will decrease. In practice, the quantity of temporary credits issued will always be equal to the difference between the level of carbon stock in the reservoir with the project and the level of carbon stock in the reservoir in the baseline scenario.

[180] The temporary credit crediting duration is the set period of time (following the issuance of the last new temporary credit) for which a project can continue to be issued temporary credits for maintenance of the stored carbon. The length of the crediting duration has not yet been set, but is expected to be long enough to ensure the value of a series of temporary credits (from a sink that is maintained) is comparable to the value of an offset credit with a replacement obligation. For example, if a sink project can create removals for 8 years before the reservoir is saturated, and the length of the crediting duration period is 20 years, the project will be able to receive temporary credits for 28 years.

[181] Like offset credits, temporary credits are only issued ex post (after the emission reduction/removal has been achieved) and only after the removal has been verified by a Verification Body and certified by the Program Authority. If a *Reduction/Removal Report* covers more than a year, the Project Proponent must interpolate the carbon stock changes for the baseline and project for each year of the reporting period using the method specified in the *Registered Project Document*.

[182] If a *GHG Assertion*, with its supporting *Reduction/Removal Report* and *Verification Report*, or an application for re-registration have not been received by the Program Authority by the required deadline, no additional temporary credits will be issued for the project. The re-registration of a project receiving temporary credits will not result in the issuance of fewer temporary credits for tonnes sequestered in previous registration periods that continue to be maintained.

[183] A temporary credit will have a lower value than an offset credit because it represents the storage of 1 tonne of CO_2e for one year, compared to a reduction in GHG emissions or the storage for a longer period as is the case for offset credits issued to sink projects. In addition temporary credit use for compliance will be limited to deferring a compliance obligation by one year. That is, the user of a temporary credit for compliance would be obligated to submit another compliance unit one year following the use of a temporary credit. Use of another temporary credit will defer addressing the obligation for yet another year.

A.3 Quantification and Reporting GHG Removals Achieved by Sink Projects

[184] A sink project will increase the carbon in a reservoir relative to the baseline. There are two quantification methods for these projects:

- **Stock method:** The Proponent quantifies the level of carbon in the reservoir from both the project and the baseline at the end of a given period. The Proponent can claim credits if the difference between the project and the baseline carbon stock has increased since the end of the last period for which a *GHG Assertion* was submitted
- **Flow (or Rate) method:** The Proponent quantifies the carbon stock change for a given period for all the sinks and sources that are associated with the reservoir. The Proponent can claim credits if there are fewer emissions with the project than in the baseline scenario, or if the removals are higher with the project than in the baseline scenario

[185] In most cases the costs of measuring removals and reversals will be too high to warrant direct measurement of the carbon stock each year. It is thus expected that sink Project Proponents will reduce the frequency of measurement or will adopt less expensive quantification methodologies such as the use of emission factors or activity-based coefficients.

[186] If the quantification is based on measuring the level of carbon in the reservoir, the Proponent must calculate the project removals or reductions with a periodicity of between one and five years. However, if a significant reversal occurs more than one year before the next anticipated reporting date, the Project Proponent would be required to submit a *GHG Assertion* with its supporting *Reduction/Removal Report* and *Verification Report* to the Program Authority within six months. A significant reversal will be defined as the lesser of

- a reduction in the project carbon stock of 10,000 tonnes CO_2e
- a reduction equal to 25% or more of credited reductions/removals

[187] Project Proponents may propose an alternative definition of a significant reversal in their *Project Document*. A justification for such a proposal will be required.

[188] It is expected that agricultural sink projects will generally use removal factors to quantify the removals achieved. That is, the effect of a project will be determined by measuring the level of activity, such as the number of hectares where no-till practices have been implemented, and multiplying this activity level by a removal factor (kg carbon stored per hectare of low till crop per year). This approach will be available for all sink projects for which removal factors are available.

[189] The Project Proponent of a sink project will be required to identify in their *Project Document* any activity or event that could result in a reversal of the carbon from the reservoir, and the methodology to quantify the impact on both the project carbon stock and the baseline carbon stock. A project that uses activity based quantification will be required to establish or select,

from a source recognized by the Program Authority, reversal factors to account for emissions from reversal activities or events.

[190] Projects that use activity based quantification will be required to submit a *GHG Assertion*, and supporting *Reduction/Removal Report* and *Verification Report*, to the Program Authority each year as the evidence related to the implementation of an activity will become increasingly difficult to verify as time passes.

[191] For projects issued temporary credits the maximum claim size will be applied only to new temporary credits claimed, that is maintenance temporary credits will not be included in the evaluation of the claim against the maximum claim size (see section II D).

A.4 Default Approach to Quantification of GHG Reductions, Removals and Emissions from Agriculture Soil Sinks

[192] To facilitate the participation of agriculture sink projects in the Offset System, the Government of Canada, in collaboration with provinces/territories, is developing a quantification protocol for soil sinks. Proponents will have the option to choose between using the default quantification protocol, or could develop a customized methodology as described in the next section.

[193] The quantification protocol will use removal factors to quantify carbon stock changes. Project Proponents that choose to use the protocol will multiply the verified number of hectares over which the practice has been implemented by the removal factor in the protocol. If there is a change in practice that could result in the release of carbon removed, the Proponent will calculate the reversal using a reversal factor set out in the protocol.

[194] The default approach will be designed to achieve accuracy at the aggregate level. Removal factors will require adjustment on an on-going basis to ensure the accuracy of the factors are maintained. For example, an adjustment will be required if additional Project Proponents join the group using the default approach or if Project Proponents leave the group to use a customized approach. Adjustments to the removal factors will not affect the credits already issued.

[195] The default approach will not require Project Proponents to provide historical information on practices implemented on the project area. However, the removal factors must account for the fact that removals achieved by projects implemented before the Project Eligibility Start Date (Jan 1, 2000) are ineligible to receive credits.

A.5 Customized Approaches to Quantification of Agriculture Soil Sinks

[196] To use a customized approach, a Project Proponent is required to provide verifiable information on the practice used before the start of the project, and that the project (practice) was not implemented prior to January 1, 2000.

[197] A customized approach must meet all the requirements of ISO 14064 part 2 and the *Offset System Specification for Quantification* as outlined in Section III C. The customized approach must be validated by the Program Authority before the project is registered.

[198] In choosing between the default and customized quantification methodologies (e.g. direct measurement or customized emission/removal factors), the Project Proponent will weigh the quantification and transaction costs against the potential to generate offset credits.

B. Indirect Emission Reductions - Electricity

[199] Electricity saving, non-emitting energy production and non-LFE cogeneration projects that result in indirect emission reductions from fossil fuel electricity production are eligible to create offset credits.

[200] Generally, quantifiable GHG emissions from projects will be deducted from the indirect GHG emission reductions to determine the number of credits to be issued. For example, in cases of biomass projects CO_2 emissions are not deducted where they have already been counted but emissions of other greenhouse gases should be considered for quantification.

B.1 Electricity Saving

[201] Electricity saving projects include energy efficiency projects implemented by electricity consumers and Demand Side Management (DSM) programs implemented by utilities.

[202] DSM programs that result in reduced electricity consumption will be eligible. DSM programs that are designed to change the timing of demand could be eligible if displacement is proven.

[203] Indirect emission reductions would be quantified by multiplying a default electricity greenhouse gas intensity factor, the National Intensity Factor set by the Program Authority, by the difference between electricity consumption in the project scenario and the baseline scenario. The baseline scenario must reflect general trends in energy efficiency improvement.

[204] The Project Proponent must demonstrate that the electricity used in the baseline scenario would have been purchased from the Canadian electricity grid.

B.2 Non-emitting Energy Production

[205] Non-emitting energy projects are non-emitting electricity generation projects that are not covered by the Large Final Emitters system. It is proposed that these projects would include but not be limited to hydroelectricity, wind energy, solar energy, biomass, landfill gas and nuclear energy projects subject to other relevant environmental assessment processes.

[206] Indirect emission reductions from small non-emitting energy projects, defined as projects with a maximum capacity less than a specified capacity threshold expected to be between 50—200 MW, will be quantified in the Offset System by multiplying a National Intensity Factor and the electricity production of the project.

[207] For small non-emitting energy projects, there will be no requirements related to the uniqueness and ownership of the emission reductions due to the indirect effect of the project as the emission reductions will not be associated with a specific thermal source on the grid. The ownership of the credits must however be established among the parties involved in the project (e.g., owner(s) of the wind farm).

[208] Large non-emitting energy projects will be considered on a case-by-case basis. A customized quantification methodology that meets the requirement of the Offset System, and that includes a methodology to identify the source of thermal production displaced by the project will be required. Guidance specific to these types of projects may be provided to Proponents by the Program Authority.

[209] In determining the ownership and uniqueness of the reductions from large non-emitting energy projects, the Project Proponent will have to consider the owners of the electricity equipment affected by the project as parties that may have a legal or financial interest in the project.

[210] Non-emitting energy Project Proponents will have to demonstrate that the power produced is sold into the Canadian electricity system.

[211] Non-emitting energy Project Proponents considering participation in other trading systems (e.g. renewable energy certificates) will need to ensure that the ownership and unique criteria for the Offset System are satisfied. Information will be required as part of the project description and will be subject to validation in order to ensure no double issuance of credits. This information will be made public.

B.3 National Intensity Factor

[212] Proponents of small non-emitting energy projects and electricity saving programs must use the National Intensity Factor to quantify indirect emission reductions from non-emitting energy projects.

[213] The Program Authority will publish an *Offset System Quantification Protocol* that will specify the National Intensity Factor as the average intensity of all electricity generation (thermal and non-thermal) in Canada. The National Intensity Factor may be adjusted periodically.

B.4 Non-LFE Cogeneration

[214] Cogeneration or Combined Heat and Power (CHP) projects at facilities not included in the Large Final Emitters system are eligible to create offset credits.

[215] Emission reductions are quantified as the difference between the baseline and project scenarios. The baseline and project scenarios must include on-site emissions from thermal sources plus net purchases of electricity multiplied by a given intensity factor.

[216] Cogeneration Project Proponents will have to demonstrate that net purchases (sales) of electricity are from (to) the Canadian electricity system.

Glossary

Affected Greenhouse Gas Source, Sink or Reservoir – A GHG source, sink or reservoir influenced by a project activity through changes in market demand or changes in supply for associated products or services.

NOTE 1: While ***related*** GHG sources, sinks or reservoirs are physically linked to a GHG project, ***affected*** GHG sources, sinks or reservoirs are linked to a GHG project by changes in behaviour due to market demand and supply.

NOTE 2: An affected GHG source, sink or reservoir is generally not located on the project site.

Afforestation/Reforestation – The creation of new forest where none has existed since prior to 31 December 1989 through planting, seeding and/or the human-induced promotion of natural seed sources. See **Forest**.

Aggregated Project – A collection of 'projects' that use the same quantification methodology and have been combined and submitted to the Program Authority for validation as a single project by an Aggregator. The aggregator will be considered the Project Proponent.

Aggregator – An entity that acts as the project proponent for a collection of 'projects' that use the same quantification methodology and are submitted to the Program Authority for validation as a single project.

Assigned Amount Units (AAUs) – The GHG emissions limitation commitment for 2008-2012 of each Annex 1 Party that ratifies the Kyoto Protocol is its "assigned amount". The total assigned amount is divided into units of 1 metric tonne of CO_2 equivalent called assigned amount units (AAUs). See Kyoto Compliance Units.

Avoided GHG Emissions – Avoided GHG emissions are reductions/removals that result from projects or activities which prevent emissions that would otherwise have occurred, particularly from new sources. Examples of projects or activities that avoid emissions include:

- activities to prevent deforestation, or prevent forest fires
- construction of a state-of-the-art energy efficient building instead of current standard practice

Baseline – hypothetical reference case that best represents the conditions most likely to have occurred in the absence of a GHG project.

NOTE 1: The baseline's emissions for a project is the scenario that reasonably represents the emissions by sources of greenhouse gases or removals by sinks that would occur in the absence of the project.

NOTE 2: The baseline scenario covers the same time period as the project.

NOTE 3: The Program Authority may prescribe a baseline for some activities, processes or project types.

Bundled Project – A bundled project incorporates several project types into one project. The bundled components must be linked such that the Program Authority is not validating completely unrelated projects.

Carbon Dioxide Equivalent (CO_2-e) – A unit that expresses the radiative forcing of a mass of a given GHG in terms of a mass of carbon dioxide with equivalent radiative forcing.

NOTE: The carbon dioxide equivalent is calculated as the mass of a given GHG multiplied by its global warming potential. See **Global Warming Potential**.

Carbon Sequestration – The process of increasing the carbon stored in a reservoir other than the atmosphere.

Carbon Stock – The absolute quantity of carbon held within a reservoir at a specified time, expressed in units of mass.

Certified Emission Reductions (CERs) – The credits issued for emission reductions by a project under the Clean Development Mechanism (CDM). CERs can be used by an Annex I Party to help meet its emissions limitation commitment under the Kyoto Protocol. Each CER equals 1 metric tonne of CO_2 equivalent. The credits issued for sink enhancements achieved by afforestation or reforestation projects under the CDM are temporary CERs (tCERs) or long-term CERs (lCERs), which are subject to provisions to protect against possible reversals of the sink enhancements. See **Kyoto Compliance Units**.

Clean Development Mechanism (CDM) – A mechanism established by the Kyoto Protocol that allows emission reduction and afforestation/reforestation projects to be implemented in developing countries that have ratified the Kyoto Protocol. CDM projects earn CERs for the emission reductions and tCERs or lCERs for the removals achieved.

Commitment Period – A period for which emissions limitation commitments apply under the Kyoto Protocol. The first commitment period is 1 January 2008 through 31 December 2012.

Compliance Units – Credits that can be used for compliance with a domestic greenhouse gas emissions target as dictated by the federal government. Kyoto Compliance Units can be compliance units, but domestic credits are not Kyoto Compliance Units.

Compliance Unit Registry – The registry where ownership of offset credits will be tracked the Canadian Carbon Unit Tracking System (CCUTS). Each person or entity that owns offset credits will have an account in the registry. The account lists the offset credits owned by that person or entity by serial number. A sale of an offset credit results in its transfer from the account of the seller to the account of the buyer. The Compliance Unit Registry could be the National Registry that Canada is required to establish to track ownership of Kyoto Compliance Units held by Canadian persons and entities.

Controlled Greenhouse Gas Source, Sink or Reservoir – A GHG source, sink or reservoir whose behaviour or operation is under the direction and influence of the Project Proponent through financial, policy, management or other instruments.

NOTE: A controlled GHG source, sink or reservoir is generally on the project site.

Covered Emissions – The emissions by a Large Final Emitter that are subject to its emission reduction requirement under the Large Final Emitters system. See **Large Final Emitters**.

Cropland Management – Under the Kyoto Protocol cropland management is the system of practices on land on which agricultural crops are grown and on land that is set aside or temporarily not being used for crop production. Some cropland management practices can increase the carbon stored in the soil. Canada must decide by late 2006 whether it wishes to include cropland management in its Kyoto Protocol accounting in the first commitment period.

Deforestation – The direct human-induced conversion of forested land to non-forested land. See **Forest**.

Dynamic Baseline – A baseline is dynamic if the method to quantify the baseline's emissions depends on parameters that will change during the registration period, for example the amount of energy needed to heat a building varies due to the weather. The level of emissions of a dynamic baseline is determined *ex-post* (i.e. once the parameters have been quantified) but the formula to calculate the baseline's emissions is approved as part of the validation.

Direct GHG Reduction – The GHG emissions reduced by a controlled GHG source.

Emissions – Greenhouse gas emissions, as stipulated in the Kyoto Protocol: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6).

Emission or Removal Factor – Factor relating the implementation of and activity, process or event to emissions or removals of GHG.

Emission Reduction – A decrease in GHG emissions released into the atmosphere by a source (e.g., capture and flaring of landfill gas reduces methane emissions). An emission reduction may be direct (by a controlled source) or indirect (by a related or affected source).

Emission Reduction Units (ERUs) – The credits issued for emission reductions or removals by a project under Joint Implementation (JI) as defined in Article 6 of the Kyoto Protocol. ERUs can be used by an Annex I Party to help meet its emissions limitation commitment under the Kyoto Protocol. Each ERU equals 1 metric tonne of CO_2 equivalent. See Kyoto Compliance Units.

Emissions Removal – A removal of greenhouse gases from the atmosphere (i.e. by sequestration).

Forest – A minimum area of 1.0 hectares and at maturity has the potential to achieve a minimum crown cover of more than 25% and a minimum height of 5 metres *in situ*. Areas must be at least 20 meters wide as measured from tree-base to tree-base. Young natural stands and all plantations which have yet to reach a crown density of 25% or tree height of 5 meters are included under forest, as are areas normally forming part of the forest area which are temporarily unstocked as a result of human intervention, such as harvesting, or as a result of natural causes, such as fire or disease, but which are expected to revert to forest.

Forest Management – Under the Kyoto Protocol forest management is a system of practices for stewardship and use of forest land aimed at fulfilling relevant ecological (including biological diversity), economic and social functions of the forest in a sustainable manner. Some forest management practices can increase the carbon stored in the trees and soil (above-ground biomass, below-ground biomass, litter, dead wood, and soil organic carbon). Canada must decide by late 2006 whether it will include forest management in its Kyoto Protocol accounting in the first commitment period.

Global Warming Potential (GWP) – An index of the cumulative radiative forcing over a specified period, usually 100 years, of 1 tonne of a greenhouse gas emitted now relative to the cumulative radiative forcing of 1 tonne of carbon dioxide over the same period. By definition the GWP of carbon dioxide is 1. The GWP values for all other greenhouse gases are greater than 1. The Conference of the Parties has adopted the Global Warming Potential values for GWP values for the first commitment period, see www.climatechange.gc.ca.

Greenhouse Gases – Greenhouse gases are constituents of the atmosphere, both natural and anthropogenic, that absorb and re-emit infrared radiation. Greenhouse gases emissions covered by the emissions limitation commitments of the Kyoto Protocol are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6).

Greenhouse Gas Assertion – A *GHG Assertion* identifies the project, specifies the period covered, indicates the greenhouse gas reductions or removals (tonnes of CO_2e) claimed, provides other relevant information, and is signed by the Project Proponent. It is included in and supported by information contained in the *Reduction/Removal Report*.

Greenhouse Gas Reservoir – A physical unit or component of the biosphere, geosphere or hydrosphere with the capability to store or accumulate a GHG removed from the atmosphere by a GHG sink or a GHG captured from a GHG source, for example, trees, soil, oil and gas reservoirs and oceans.

Indirect GHG Reduction –The GHG emissions reduced by a related or affected GHG source.

Joint Implementation (JI) – A mechanism that allows emission reduction and removal projects to be implemented in Annex I Parties that have ratified the Kyoto Protocol. JI projects earn ERUs for the emission reductions/removals achieved.

Kyoto Compliance Units – Units recognized under the Kyoto Protocol as compliance units for the national emission limitation commitments of Annex I Parties: Assigned Amount Units (AAUs), Emission Reduction Units (ERUs) from the Joint Implementation Mechanism, Certified Emission Reductions (CERs), temporary CERs (tCERs) and long-term CERs (lCERs) from the Clean Development Mechanism and Removal Units (RMUs).

Large Final Emitters – Entities in the thermal electricity, oil and gas, mining and manufacturing sectors that will be subject to a limit on the intensity of their greenhouse gasses emissions.

Level of Assurance – The degree of assurance required in a verification statement. The level of assurance is used to determine the depth of detail that a verifier designs into their verification to determine if there are any material errors, omissions or misrepresentations. The Offset System requires verification be undertaken at a high level of assurance.

Liability Period – The period during which the Project Proponent of a sink project is liable for maintenance of the increase of carbon in a reservoir for which an offset credit has been issued.

National Registry – The system that records national holdings of Kyoto compliance units through which Canada will demonstrate compliance with its Kyoto commitment.

National Inventory – The aggregate anthropogenic carbon dioxide equivalent emissions of greenhouse gases during a specified year for the gases and source categories covered by the Kyoto emissions limitation commitment. (See www.climatechange.gc.ca for a list of the sources covered by Canada's national inventory.)

Non-Permanence – The temporary nature and potential reversibility of greenhouse gas storage in reservoirs.

Monitoring – Periodic measurement of greenhouse gas emissions/removals.

Offset Credit – A credit issued by the Program Authority for 1 tonne of CO_2e reduced or removed from the atmosphere and stored permanently by a registered offset project.

Offset System Registry – The Offset System Registry stores information related to individual offset projects:

- *Project Documents/Registered Project Documents*
- Information on baselines and quantification
- *GHG Assertions, Reduction/Removal Reports* and *Verification Reports*

The Offset Project Registry will be used to track the project from application to issuance of offset credits. All project specific documents posted for public review will have proprietary information removed.

Offset System – The Offset System awards offset credits for verified emission reductions or removals by eligible projects. Participation in the Offset System is voluntary.

Offset System Quantification Protocol (OSQP) – A quantification protocol provides detailed information on the baseline, monitoring, reporting and quantification of the GHG emission reductions/removals for a project type. An *Offset System Quantification Protocol* must be validated by the Program Authority before a proposed project using the protocol can be registered.

Program Authority – The entity responsible for administration of the Offset System.

Project – An activity implemented by a proponent to reduce or remove GHG emissions.

Project Document – A document prepared by a Project Proponent describing a proposed project in sufficient detail to enable an assessment as to whether it should be validated and registered as an offset project. The *Project Document* must include a quantification protocol or methodology (baseline, monitoring, reporting and quantification of GHG emission reductions/removals) indicating how the net emission reductions or removals will be quantified.

Project Proponent – The person or entity identified in the *Project Document* as having the authority to deal with the Program Authority and implement the proposed project.

Project Start Date –The date the initial reductions/removals from the project occur. This information must be verifiable.

Quantification Methodology – A methodology to quantify the GHG reduction/removals achieved by a specific project. The quantification methodology must be validated by the Program Authority before the proposed project can be registered.

Reduction/Removal Report – Report prepared by the project proponent quantifying the GHG reductions, removals or reversals achieved during a defined period as specified in the *Registered Project Document*. The *Reduction/Removal Report* must include a *GHG Assertion*.

Reforestation – The direct human-induced conversion of non-forested land to forested land through planting, seeding and/or the human-induced promotion of natural seed sources, on land that was forested but that has been converted to non-forested land. For the first commitment period, reforestation activities will be limited to reforestation occurring on those lands that did not contain forest on 31 December 1989. See **Forest**.

Registered Project Document – The *Registered Project Document* contains all the information used to validate the project including the requirements for the quantification, reporting and verification of reductions or removals by the project. It is prepared by the Program Authority with input from the Project Proponent. The *Registered Project Document* is posted on the Offset System Registry. Confidential information will not be posted.

Related Greenhouse Gas Source, Sink or Reservoir – A GHG source, sink or reservoir that has material or energy flows into, out of, or within the project.

NOTE 1: A related GHG source, sink or reservoir is generally upstream or downstream from the project, and can be either on or off the project site.

NOTE 2: A related GHG source, sink or reservoir also may include activities related to design, construction and decommissioning of a project.

Relevant GHG Sources/Sinks/Reservoirs (S/S/R) – The set of controlled, related and affected sources, sinks and reservoirs for the baseline and project scenarios, which must be measured or estimated to quantify the GHG reduction or removal achieved by the project.

Removal Units (RMUs) – The credits issued for net sink enhancements by eligible activities under Articles 3.3 and 3.4 of the Kyoto Protocol by an Annex I Party. RMU's can be used by an Annex 1 Party to help meet its commitment under the Kyoto Protocol. Each RMU equals 1 metric tonne of CO_2 equivalent. See Kyoto Compliance Units.

Reservoir – See Greenhouse Gas Reservoir.

Reversal – A reduction in the amount of carbon previously stored (sequestered) in a reservoir, resulting in CO_2 emissions.

Sequestration – The process of increasing the carbon stock in a reservoir other than the atmosphere.

Sink – Any process, activity or mechanism that removes a greenhouse gas from the atmosphere.

Source – Any process or activity that releases a greenhouse gas into the atmosphere.

SSR – Source Sink Reservoir- see definitions for source, sink and GHG Reservoir.

Standards Development Organization (SDO) – An SDO is a nationally recognised body involved in the development and application of standards that establish accepted practices, technical requirements and terminologies for products, services and systems.

Temporary Offset Credit – A temporary offset credit is issued for the storage of one tonne of CO_2e in a reservoir for one year. The Project Proponent has no replacement liability for tonnes issued temporary credits. A temporary credit can be used to defer an entity's emission reduction obligation of 1 tonne for 1 year.

Uncertainty – A parameter that characterizes the dispersion of values that could be reasonably attributed to a quantified amount.

Validation – The process used to determine that a proposed project meets the Offset System eligibility criteria. A proposed project that meets all of the requirements as assessed by the Program Authority is registered as an offset project and is eligible to be issued offset credits.

Verification Body – An independent entity, similar to an auditor, that has been accredited to verify a *Reduction/Removal Report* for specified project types.

Verification Report – A report prepared by an accredited third party Verification on the level of assurance that the GHG reductions/removals reported by a Project Proponent in a *GHG Assertion* and supporting *Reduction/Removal Report* occurred.

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